ABSTRACT OF THE DISCLOSURE

A device for calculating diffraction efficiencies of a diffraction lens divided into a plurality of regions, each region comprising at least one grating ring, comprises a first memory for storing information about diffraction efficiencies of the regions; a second memory for storing information about weights corresponding to the regions; and a first processor for retrieving information from the first and the second memory, and calculating diffraction efficiencies of the entire diffraction lens using the formula

(1) $$E_j = \sum_{m=1}^{M} W_m \eta_{mj}$$

wherein:

   j : integer indicating the order of diffraction light

   E_j : diffraction efficiency for j–th order diffraction light of the diffraction lens

   M : positive integer (M > 1) indicating the number of regions for which the diffraction efficiency is calculated

   m : index of the region for which the diffraction efficiency is calculated

   η_{mj} : diffraction efficiency for the j–th order diffraction light of the m–th region (stored in the first memory)

   W_m : weight for the m–th region (stored in the second memory means).

Thus, the diffraction efficiency of the diffraction lens can be calculated easily.